Student: (PAUL OKAFOR)

1. Can you tell us about your background and what led you to pursue your graduate studies at the University of Oklahoma, Gallogly College of Engineering ?

A: I hold a Bachelor's (2016) and a Master's degree (2019) in Petroleum Engineering, and I worked briefly in the field before shifting my career path to data science. During the COVID-19 lockdown in 2020, I began learning data analysis and soon became proficient in data science and machine learning, assisting friends with their data projects. The rising prominence of AI further fueled my interest, and I saw a unique opportunity to blend these skills with my engineering background. After years of self-study, I decided to formalize my education with a Master's degree in Data Science to explore diverse engineering applications. A friend who graduated from the University of Oklahoma in 2023 recommended it as an outstanding research institution, and its strong data science program convinced me to apply.

1. What specific projects are you currently working on? How do these projects contribute to your overall academic and research goals?

A: I am currently engaged in a research project titled “Monitoring and Optimizing Recombinant Protein Titer Production in Escherichia Coli Fermentations using Interpretable Machine Learning” under the guidance of Dr. Razzaghi. Since January 2024, this project has provided me with invaluable insights into the application of data science and AI within the Biotechnology sector. My overarching academic and professional ambition is to deepen my expertise in data science while specializing in an engineering discipline. The experiences and knowledge I've gained over these past months have unveiled numerous opportunities in Biotechnology, reaffirming my belief that it is a highly promising field for specialization.

1. How do anticipate working at the core facility will enhance your understanding and skills in your field of study?

A: Working at the University of Oklahoma Biotech Core Facility, equipped with state-of-the-art high-throughput and advanced bioprocessing equipment, presents a unique opportunity to significantly enhance my understanding and skills in my field of study. This exposure will allow me to apply data science and machine learning techniques to real-world bioprocessing challenges, furthering my expertise in integrating these technologies within the Biotechnology sector. Collaborating with esteemed institutions such as OMRF and innovative companies like Cytovance Biologics will provide invaluable practical experience and insights, ultimately propelling my research and professional development in data-driven biotechnology applications.

1. Can you describe a particularly rewarding experience you've had throughout your research training project?

A: One particularly rewarding experience I've had during my research training project was submitting a short paper titled “Monitoring Recombinant Protein Titer in Escherichia Coli Fermentations Using Advanced Filtering Techniques” to the INFORMS 8th Workshop on Data Science 2024. This endeavor encapsulated months of rigorous research, data analysis, and collaborative efforts. Crafting the paper allowed me to consolidate and articulate our findings, highlighting the innovative methodologies we employed and their potential impact on the field of biotechnology.

Working closely with my advisor, Dr. Razzaghi, who has been an incredible mentor and source of inspiration, I gained deeper insights into the complexities of monitoring recombinant protein production. Her guidance, expertise, and unwavering support were instrumental in navigating the challenges of this research. The anticipation of potentially being selected for the conference adds to the excitement and sense of accomplishment.

1. In what ways has your experience contributed to your ability to have a career biotech?

A: My research experiences have solidified my conviction about the booming sector of biotechnology and the vast opportunities for machine learning within it. Engaging in projects like monitoring recombinant protein production has provided me with practical skills and insights, preparing me to tackle real-world challenges in biotech. These experiences have reinforced my belief in the potential of combining data science with biotechnology, and I am excited to pursue a career in this innovative and rapidly growing field.

1. How do you collaborate with other students, researchers, and the broader research community?

A: Collaboration is key in research, and I actively engage with other students and researchers through regular lab meetings, interdisciplinary seminars, and collaborative projects. I also participate in conferences and workshops to network with the broader research community, exchange ideas, and stay updated on the latest developments in the field. This collaborative approach not only enhances my research but also fosters a supportive learning environment.

1. What advice would you give to other graduate students who are considering working on a biotech related research training project during their studies?

A: My advice to graduate students considering a biotech-related research project is to stay curious and open-minded. Embrace interdisciplinary learning, as biotech often intersects with various fields. Seek out mentors and actively participate in research communities to gain diverse perspectives. Finally, stay persistent and resilient; the field is challenging but incredibly rewarding, with vast opportunities for innovation and impact.